

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS

1. (Currently amended) An ultrasonic probe for obtaining ultrasound information of a region of interest (ROI), the probe comprising:
 - a housing having a central scan plane;
 - a transducer array pivotally mounted within the housing, the transducer array being pivotal around a rotation axis, the transducer array capable of sweeping through the central scan plane parallel to a longitudinal axis of the probe;
 - a drive shaft, said transducer array mounted to said drive shaft; **and**
 - a control member pivoting the transducer array about the rotation axis with respect to the central scan plane, the transducer array being configured to transmit and receive ultrasound signals to and from an oblique scan plane oriented at an angle with respect to the central scan plane,
 - wherein said control member comprises a stepper motor disposed in said housing,
 - wherein said drive shaft is coupled to said control member by a drive belt,
 - wherein said control member operates to rotate said drive belt; **and**

a rotational control device activating said stepper motor to rotate said transducer array a predetermined angle for each activation of said device, said predetermined angle greater than an incremental step angle of said stepper motor.

2. (Canceled)

3. (Currently amended) An ultrasonic probe for obtaining ultrasound information of a region of interest (ROI), the probe comprising:

- a housing having a central scan plane;
- a transducer array pivotally mounted within the housing, the transducer array being pivotal around a rotation axis,
- wherein said transducer array is connected to a drive shaft;
- a control member pivoting the transducer array about the rotation axis with respect to the central scan plane, the transducer array being configured to transmit and receive ultrasound signals to and from an oblique scan plane oriented at an angle with respect to the central scan plane,
- wherein the control member comprises a stepper motor disposed in the housing;
- a gear connected to said drive shaft; **and**
- a belt, wherein the belt couples the gear to the stepper motor,
- wherein said stepper motor operates to rotate said drive shaft by moving said belt;

and

a rotational control device including a switch, said device activating said stepper motor to pivot said transducer array a predetermined angle when said switch is activated, said predetermined angle greater than an incremental step angle of said stepper motor.

4. (Previously presented) An ultrasonic probe for obtaining ultrasound information of a region of interest (ROI), the probe comprising:

a housing having a central scan plane;

a transducer array pivotally mounted within the housing, the transducer array being pivotal around a rotation axis; and

a control member pivoting the transducer array about the rotation axis with respect to the central scan plane, the transducer array being configured to transmit and receive ultrasound signals to and from an oblique scan plane oriented at an angle with respect to the central scan plane,

wherein the control member comprises a handcrank, said handcrank employed to pivot said transducer array.

5. (Original) The ultrasonic probe of claim 1, further comprising a position sensing device for sensing an angular position of the transducer array with respect to a reference angle.

6. (Original) The ultrasonic probe of claim 1, further comprising an optical sensing device for sensing an angular position of the transducer array with respect to a reference angle.

7. (Original) The ultrasonic probe of claim 1, further comprising a centering device determining when the transducer array is aligned with the central scan plane.

8. (Original) The ultrasonic probe of claim 7, wherein the centering device is a magnetic sensing device.

9. (Original) The ultrasonic probe of claim 1, wherein the probe is configured to obtain 3D volumes of scan planes.

10. (Original) The ultrasonic probe of claim 1, further comprising a button directing the control member to rotate the transducer array a predetermined number of degrees each time the button is pressed.

11. (Original) The ultrasonic probe of claim 1, further comprising a button directing the control member to rotate the transducer array to a predetermined position relative to the central scan plane.

12. (Original) The ultrasonic probe of claim 1, wherein the probe is one of a rectal probe, an endovaginal probe, a small part probe producing a sector-shaped scan plane, and a small linear probe producing a rectangular-shaped scan plane.

13. (Currently amended) An ultrasonic probe for obtaining ultrasound information of a region of interest (ROI), the probe comprising:

- a housing having a central scan plane;
- a transducer array pivotally mounted within the housing, the transducer array being pivotal around a rotation axis, the transducer array capable of sweeping through a central scan plane parallel to a longitudinal axis of the probe;
- a motor pivoting the transducer array about the rotation axis with respect to the central scan plane, the transducer array being configured to transmit and receive ultrasound signals to and from an oblique scan plane oriented at an angle with respect to the central scan plane;
- a gear connected to ~~[[said]]~~a drive shaft, said drive shaft rotatable by moving said gear; ~~and~~
- a belt forming a loop connecting said motor to said gear, said motor rotating said drive shaft by moving said belt and said gear; and
- a rotational control device including a button, said device activating said motor to pivot said transducer array a predetermined angle when said button is

activated, said predetermined angle greater than an incremental step angle of said motor.

14. (Original) The ultrasonic probe of claim 13, wherein the probe is one of a rectal probe, an endovaginal probe, a small part probe producing a sector-shaped scan plane, and a small linear probe producing a rectangular-shaped scan plane.

15. (Original) The ultrasonic probe of claim 13, wherein the motor is a stepper motor disposed in the housing.

16. (Currently amended) An ultrasonic probe for obtaining ultrasound information of a region of interest (ROI), the probe comprising:

- a housing having a central scan plane;
- a transducer array pivotally mounted on a drive shaft within the housing, the transducer array being pivotal around a rotation axis;
- a motor pivoting the transducer array about the rotation axis with respect to the central scan plane, the transducer array being configured to transmit and receive ultrasound signals to and from an oblique scan plane oriented at an angle with respect to the central scan plane,
- wherein the motor is a stepper motor disposed in the housing;
- a gear attached to the drive shaft of the transducer array; and

a belt coupling the gear to the stepper motor,
wherein said transducer array is pivoted around said rotation axis by said motor
rotating said belt, said belt thereby rotating said gear; and

a rotational control device activating said stepper motor to rotate said
transducer array a predetermined angle for each activation of said device, said
predetermined angle greater than an incremental step angle of said stepper motor.

17. (Original) The ultrasonic probe of claim 13, further comprising a
position sensing device for sensing an angular position of the transducer array with
respect to a reference angle.

18. (Original) The ultrasonic probe of claim 13, further comprising an
optical sensing device for sensing an angular position of the transducer array with respect
to a reference angle.

19. (Original) The ultrasonic probe of claim 13, further comprising a
centering device for determining when the transducer array is aligned with the central
scan plane.

20. (Original) The ultrasonic probe of claim 19, wherein the centering
device is magnetic sensor device.

21. (Currently amended) A method for obtaining 2D images of a region of interest (ROI), the method comprising the steps of:

providing a housing having a central scan plane;

mounting a transducer array pivotally within the housing, the transducer array being pivotal around a rotation axis, the transducer array capable of sweeping through a central scan plane parallel to a longitudinal axis of the housing;

pivoting the transducer array **a predetermined angle** around the rotation axis with respect to the central scan plane by rotating a belt connected to **[[said]]a** drive shaft, the transducer array being configured to transmit and receive ultrasound signals to and from an oblique scan plane oriented at an angle with respect to the central scan plane;
and

providing a stepper motor disposed in said housing, said stepper motor rotating said belt; **and**

providing a rotational control device activating said stepper motor to pivot said transducer array said predetermined angle for each activation of said device,

wherein said predetermined angle is greater than an incremental step angle of said stepper motor.

22. (Canceled)

23. (Currently amended) A method for obtaining 2D images of a region of interest (ROI), the method comprising the steps of:

providing a housing having a central scan plane;
mounting a transducer array for pivotal motion around a rotation axis,
wherein said transducer array is mounted on a drive shaft;
pivoting the transducer array around the rotation axis with respect to the central scan plane, the transducer array being configured to transmit and receive ultrasound signals to and from an oblique scan plane oriented at an angle with respect to the central scan plane;
providing a stepper motor disposed in the housing; **and**
providing a gear and a belt, wherein the belt couples the gear to the stepper motor,
wherein said gear is connected to said drive shaft, said drive shaft rotated by said stepper motor rotating said belt, said belt thereby rotating said gear; **and**
providing a rotational control device including a switch, said device activating said stepper motor to pivot said transducer array a predetermined angle when said switch is activated, said predetermined angle being greater than an incremental step angle of said sepper motor.

24. (Previously presented) A method for obtaining 2D images of a region of interest (ROI), the method comprising the steps of:

providing a housing having a central scan plane;

mounting a transducer array for pivotal motion around a rotation axis; and
pivoting the transducer array around the rotation axis with respect to the central scan plane, the transducer array being configured to transmit and receive ultrasound signals to and from an oblique scan plane oriented at an angle with respect to the central scan plane; and
providing a handcrank, said handcrank employed to pivot said transducer array.

25. (Original) The method of claim 21, further comprising the step of providing a position sensing device for sensing an angular position of the transducer array with respect to a reference angle.

26. (Original) The method of claim 21, further comprising the step of providing an optical sensing device for sensing an angular position of the transducer array with respect to a reference angle.

27. (Original) The method of claim 21, further comprising the step of providing a centering device determining when the transducer array is aligned with the central scan plane.

28. (Previously presented) The method of claim 27, wherein the step of providing a centering device comprises providing a magnetic sensing device determining when the transducer array is aligned with the central scan plan.

29. (Previously presented) The method of claim 21, further comprising the step of configuring the transducer array to obtain 3D volumes of scan planes.

30. (Original) The method of claim 21, further comprising the step of providing a button for rotating the transducer array a predetermined number of degrees each time the button is pressed.

31. (Original) The method of claim 21 and comprising the step of providing a button for rotating the transducer array to a predetermined position relative to the central plane.

32. (Previously presented) The method of claim 21 wherein the transducer array is located in at least one of a rectal probe, an endovaginal probe, a small part probe producing a sector-shaped scan plane, and a small linear probe producing a rectangular-shaped scan plane.